REMARKS

Claims 1-10 are pending in this application. By this Response, claims 2 and 4 have been amended. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

In paragraphs 1-4 of the Office Action, the Examiner rejects claims 2 and 4 as being indefinite. Specifically, the Examiner alleges that claim 2 has insufficient antecedent basis for "the pulse train" and claim 4 has insufficient antecedent basis for "the step of partitioning" and "the steps of placing." Applicant has amended both claims 2 and 4 to establish sufficient antecedent basis, and accordingly requests that the Examiner reconsider and withdraw this rejection.

The above-described claim amendments have been drafted in response to the indefiniteness rejection, to impart precision into the claims by more particularly pointing out the invention. The claim amendments have not been drafted to overcome any prior art.

In paragraphs 5 and 6 of the Office Action, the Examiner rejects Claims 1, 3-6, 9 and 10 under 35 U.S.C. § 102(b) as anticipated by Smischny (U.S. patent 5,166,890). Applicant respectfully traverses this rejection as follows.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. M.P.E.P. § 2131. The identical invention must be shown in as complete detail as is contained in the claim. *Id.* However, Applicant submits that claim 1 has elements that cannot be found, either expressly or inherently, in Smischny. For example, claim 1 rectites, in part, "A method for detecting an error in a transmission in an ultra-wideband communications system."

An ultra-wideband communication system broadcasts a multiplicity of pulses of very short duration to transmit a signal. Ultra-wideband, or impulse radio employs pulses of electromagnetic energy that are emitted at nanosecond or picosecond intervals (generally tens of picoseconds to a few nanoseconds in duration). For this reason, ultra-wideband is often called "impulse radio." Because the excitation pulse is not a modulated waveform, UWB has also been termed "carrier-free" in that no apparent carrier frequency is evident in the radio frequency (RF) spectrum. That is, the UWB pulses are transmitted without modulation onto a sine wave carrier frequency, in contrast with conventional radio frequency technology. Ultra-wideband requires neither an assigned frequency nor a power amplifier.

The specification refers to the present invention as a "system and method of ultra-wideband communication" (Field of the Invention section, page 1, line 12), and also discusses the unique characteristics of ultra-wideband communication technology in the Background of the Invention section (page 1, lines 15-20). Moreover, independent claims 1, 5, 9, and 10 all recite, in part, either "an ultra-wideband communications system" or "an ultra-wideband transmission."

Ultra-wideband systems are often described as carrier-free systems, to distinguish them from conventional carrier wave systems, such as those disclosed in Smischny. Smischny relates to a performance monitoring system used for telephony applications. Specifically, Smischny relates to monitoring the performance of data sent via modem. Modems are devices that transmit digital information over telephone lines by modulating the digital information before transmitting it. Modulation is a technique of varying a radio carrier frequency so that a signal can ride on it. Smischny teaches modulation and demodulation throughout the specification, such as column 6, lines 38-40: "The three input channels to modulator 25 modulate a 6.6GHz carrier which is broadcast via antenna 26 to antenna 27 located at repeater facility 13. At the repeater facility, the RF signal produced by antenna 27 is demodulated in demodulator 28 to

recover the two DS-3 channels and the overhead channel." Therefore, Smischny teaches a conventional method of transmitting data by modulating and demodulating a carrier frequency.

In contrast, the present invention relates to ultra-wideband technology that does not use a carrier frequency as disclosed in Smischny. Smischny contains no teaching or suggestion of an ultra-wideband communication system, and as discussed above, ultra-wideband technology functions completely differently than conventional carrier wave technology. Therefore, the anticipation rejection of independent claims 1, 5, 9 and 10 is respectfully traversed. Because claims 3-4 and 6 depend from either independent claim 1 or 5, it is respectfully submitted that the rejection of these claims has been traversed by virtue of their dependency from either independent claim 1 or 5.

In paragraphs 7-8 of the Office Action, the Examiner rejects claims 2, 7 and 8 as unpatentable under 35 USC §103(a) over Smischny in view of Trotter (US Patent 5,862,141). Applicant respectfully traverses this rejection as follows.

Trotter relates to a variable bit rate radio modem system to enhance data transmission and reduce air rates. Again, similar to Smischny, Trotter teaches the modulation and demodulation of signals carried on a conventional carrier frequency. There is no teaching or suggestion in Trotter of an ultra-wideband communication technology.

Moreover, because claims 2, 7 and 8 depend from either independent claim 1 or 5, it is respectfully submitted that the rejection of these claims has been traversed by virtue of their dependency from either claim 1 or 5. M.P.E.P. §2143.03.

Conclusion

Applicant believes that this Response has addressed all items in the Office Action and now places the application in condition for allowance. Accordingly, favorable reconsideration and allowance of claims 1-10 at an early date is solicited. Should any issues remain unresolved, the Examiner is invited to telephone the undersigned.

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Respectfully submitted,

LUCE, FORWARD, HAMILTON & SCRIPPS LLP

By: _____

Peter R. Martinez
Attorney for Applicant(s)
Reg. No. 42,845
c/o LUCE, FORWARD, HAMILTON & SCRIPPS LLP
11988 El Camino Real, Ste. 200
San Diego, California 92130
Telephone No.: (858) 720-6300

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

The following claims have been amended:

2. (Amended) A method according to claim 1, further comprising the steps of:

after receiving at least one positive pulse and at least one negative pulse ~~the pulse train~~, determining a data type of the ultra-wideband transmission and calculating an error rate for the ultra-wideband transmission;

if the calculated error rate is less than a Typical Minimum Acceptable Bit Error Rate (TMABER), then sending the ultra-wideband transmission to a desired destination;

if the calculated error rate is greater than the TMABER and less than a Maximum Bit Error Rate For Correction (MBERFC), then error correcting the ultra-wideband transmission before sending the ultra-wideband transmission to the desired destination; and

if the calculated error rate is greater than the MBERFC, then requesting the re-transmission of the ultra-wideband transmission.

4. (Amended) The method according to claim 1,

wherein the step of transmitting includes ~~the step of~~ partitioning each of the positive timing window and the negative timing window into an equal number of timing slots, each timing slot having the same time duration, and

wherein the step of positioning includes ~~the steps of~~ placing the positive pulse in a particular timing slot of the positive timing window and placing the negative pulse in an equivalently positioned timing slot of the negative timing window.